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## Rubber Fabrication

# Rubber Physical and Chemical Properties

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#### Thermal Expansion

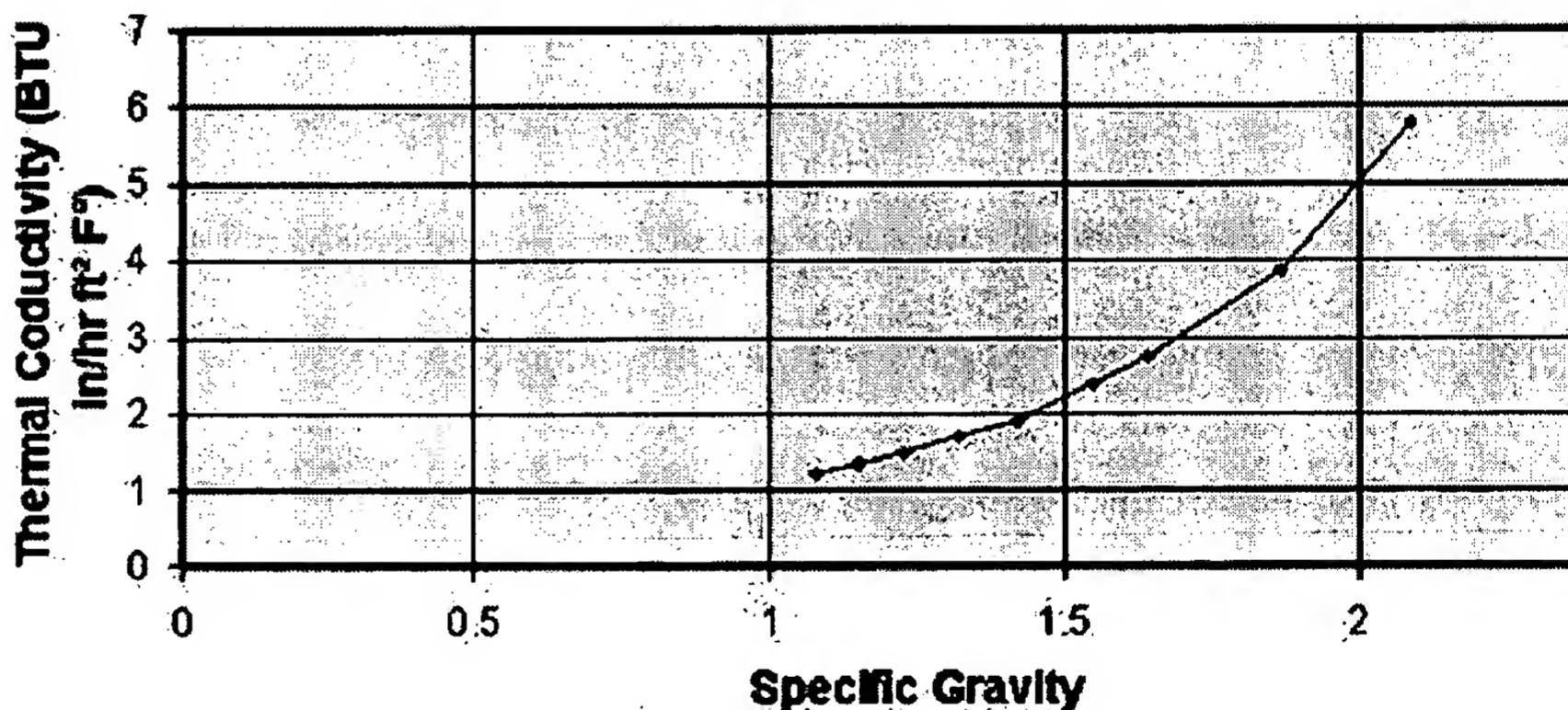
The coefficient of volumetric thermal expansion for all *Silastic®* silicone rubber products is in the range of 5.9 to 4/°C. The linear coefficient of thermal expansion is roughly one-third of the volumetric coefficient of thermal expansion. This can be used to calculate the total linear thermal expansion of a rubber part over a temperature range.

Example: If the volumetric coefficient of thermal expansion is  $5.9 \times 10^{-4}/^{\circ}\text{C}$  and the temperature span is 150°C, the resulting linear expansion of a part one-inch long would be ...  $5.9 \times 10^{-4}/^{\circ}\text{C} \times 150\ ^{\circ}\text{C} \times 1 \text{ in.} = 0.0295 \text{ in.}$

#### Thermal Conductivity

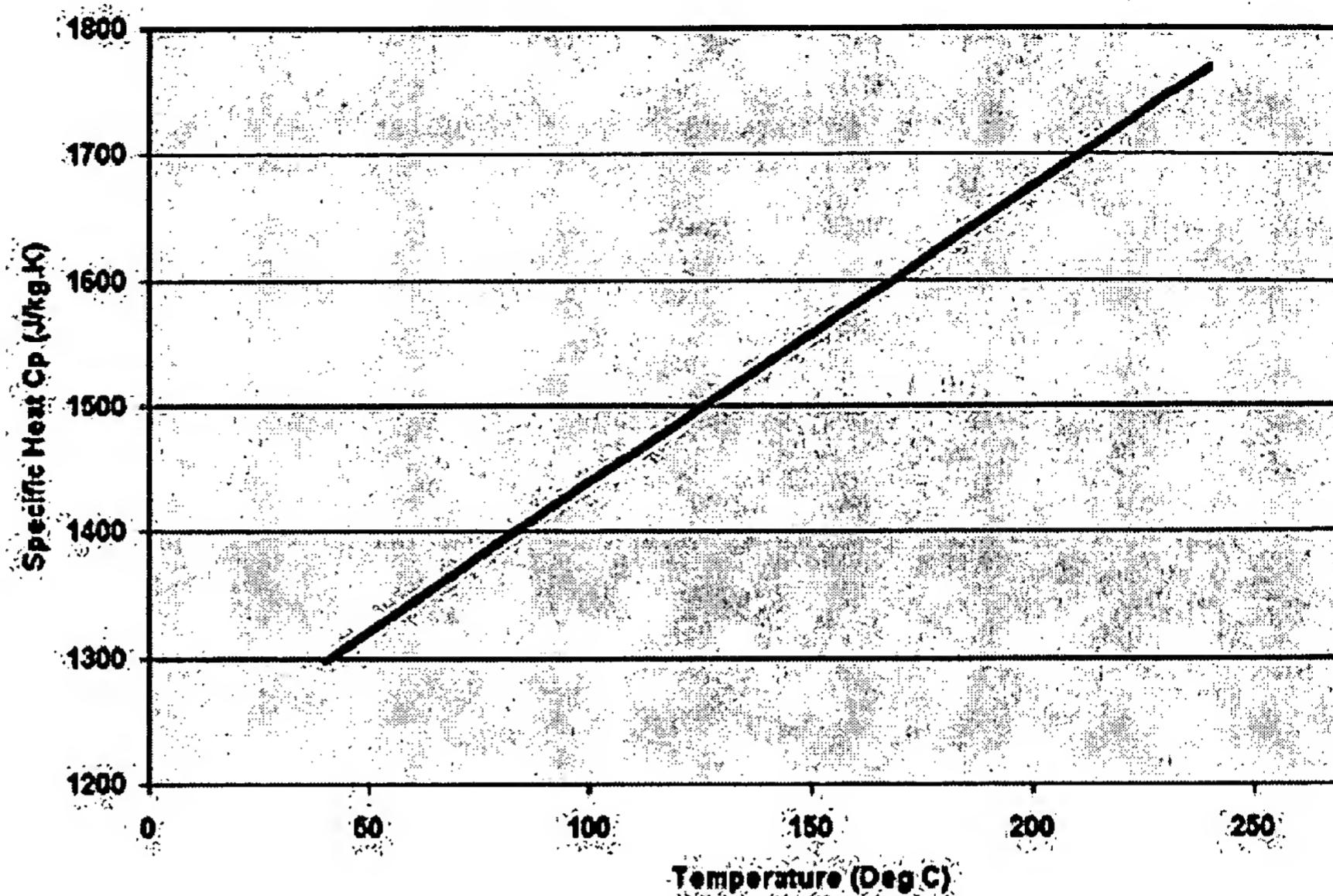
Values usually range from 0.330 to  $0.515 \times 10^{-3} \text{ g-cal/sec/cm}^2/\text{cm}/^{\circ}\text{C}$ .

### Thermal Conductivity, K



#### Specific Heat

The specific heat of *Silastic* silicone rubber ranges from 0.28 to 0.35 cal/gr/°C. Generally, the higher hardness compounds (60 or more durometer points) are at the low end of this range and lower hardness rubbers are at the high end.

Specific Heat of Sylastic® Liquid Silicone Rubber

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